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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,325	09/06/2000	Steven D. Nelson	14073US01	9079
23446	7590	12/18/2003	EXAMINER CHAMBERS, TROY	
MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			ART UNIT 3641	

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/656,325

Applicant(s)

NELSON ET AL.

Examiner

Troy Chambers

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-13,31-37 and 62-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-13,31-37 and 62-67 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. With respect to the rejection of claims 35-37 under 35 U.S.C. 112 (1), the applicant's arguments are persuasive and the rejection has been withdrawn.
2. With respect to the rejection of claims 37 under 35 U.S.C. 112(2), the applicant's arguments are unpersuasive because the specification requires the ERC to have a capacitance of 2 microfarads (spec., pg. 8, ll. 10-12).
3. Applicant's arguments with respect to claims 1, 4-12 and 31-37 as being rejected under 35 U.S.C. 102(b) as anticipated by Adams have been considered but are moot in view of the new ground(s) of rejection. The "single command" feature claimed by the applicant has been made obvious by the Jullian reference.
4. With respect to the rejection of claim 4 Adams discloses a multiplexer for *reading* and *sending* control integrity to the ECU (see rejection for reference cite).
5. Applicant's arguments with respect to claims 6 and 9 have been considered but are moot in view of the new ground(s) of rejection. The "bleed resistor" feature claimed by the applicant has been made obvious by the Williams reference.
6. With respect to the rejection of claims 33 and 34, Darby discloses a DC-to-DC power converter 260. Controllers 200 comprise capacitors 240 that receive increased voltages from the converters 260. The devices are capable of detonating only when the proper voltage level is sensed (25 volts) and a unique signal is received.
7. With respect to the rejection of claims 35 and 37, the Examiner has provided an obviousness rejection as discussed below.

8. With respect to the rejection of claims 64 and 65 under 35 U.S.C. 103(a), the applicant's arguments are moot in because the "single command" subject matter claimed by the applicant has been made obvious by Jullian.

9. New claims 66 and 67 have been rejected as provided below.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 37 recites the phrase "on the order of" 2 microfarads. The phrase "on the order of" was held to be indefinite because the specification lacked some standard for measuring the degree intended. Ex parte Oetiker, 23USPQ2d 1641 (Bd. Pat. App. & Inter. 1992).

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 33, 34, 66 and 67 are rejected under 35 U.S.C. 102(b) and (e) as being anticipated by U.S. Patent No. 6166452 issued to Adams et al. ("Adams") and U.S. 5825098 issued to Darby. Adams discloses a plurality of igniters 10 connected to a networked electronic ordnance system via a bus controller (ECU). Darby discloses the details of the communication details of the ECU and the plurality of igniters. Both Darby and Adams qualify as prior art under a single rejection under 35 U.S.C. 102 because Adams incorporated Darby into its specification by reference. The analog condition to firing condition subject matter of applicant's claim 33 is anticipated by the analog to digital converter disclosed in Darby. (See, Darby, col. 8, ll. 12-15; col. 14, ll. 3-40) and the DC-to-DC power converter 260. Controllers 200 comprise capacitors 240 that receive increased voltages from the converters 260. The devices are capable of detonating only when the proper voltage level is sensed (25 volts) and a unique signal is received.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 4, 5, 7, 8, 10-12 and 31-32 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6166452 issued to Adams et al. ("Adams") and U.S. 5825098 issued to Darby in view of U.S. Patent No. 5014622 issued to Jullian. Adams

discloses a plurality of igniters 10 connected to a networked electronic ordnance system via a bus controller (ECU). Darby discloses the details of the communication details of the ECU and the plurality of igniters. Both Darby and Adams qualify as prior art under a single rejection under 35 U.S.C. 102 because Adams incorporated Darby into its specification by reference. Adams/Darby does not disclose all the subject matter of applicant's claim 1. Jullian discloses a blasting system including the ability to address, with a single command, as few as one or all pyrotechnic devices (refer to at least columns 7 and 8). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the device of Adams and Darby with the global communication capabilities disclosed in Jullian. The suggestion/motivation would have been to allow the ECU to query all pyrotechnics at the same time.

13. With respect to claims 1, 10, 31, 32 refer to Adams, col. 4, line 64 to col. 5, ll. 6 (bus controller); col. 5, ll. 14-15 (plurality of igniters); and, col. 5, ll. 33-35 (unique signal). Jullian discloses a blasting system comprising a blaster and blasting caps, the blaster operable to assign the blasting caps a unique identifying address (Jullian, col. 15, ll. 10-20 and col. 16, ll. 28-38)

14. With respect to claim 4, refer to Adams, col. 5, ll. 29-32 (multiplex signals).

15. With respect to claims 5 and 8, Adams discloses capacitor 56.

3. With respect to claim 7, refer to Adams, Fig. 5.

4. With respect to claims 11 and 12, refer to Adams, col. 5, ll. 1-13 (serial and parallel communications).

16. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams/Darby in view of Jullian and in further view of U.S. Patent No. 5206455 issued to Williams. Adams/Darby and Jullian disclose a combined system as described above with the exception of the subject matter of claims 6 and 9. Williams discloses such subject matter including bleed resistors (col. 22, ll. 53-60). At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the combined device of Adams/Darby and Jullian with the bleed resistor of Williams. The suggestion/motivation for doing so would have been to provide an extra safety feature to bleed off current not intended to detonate the ignitors.

17. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Jullian and in further view of U.S. Patent No. 6403887 issued to Kebabjian. Adams and Jullian disclose a networked ordnance system as described above. However, Adams and Jullian do not disclose the use of at least one shielded twisted pair cable. Kebabjian discloses a shielded twisted pair cable 10. At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the network of Adams with the cable of Kebabjian. The suggestion/motivation for doing so would have been to prevent spurious noise and provide for high-speed communication.

5. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams/Darby. Adams/Darby discloses an electronic ordnance system as described above including a discharge capacitor. Adams/Darby does not disclose a capacitor that is charged in 5 msec or less. However, at the time of the invention, one of ordinary skill in the art would have found it obvious to provide the electronic ordnance system of

Adams/Darby with a capacitor that charges in approximately 5 msec or less. The igniter in Adams/Darby is associated with vehicle protection devices in vehicles such as airbags. Hence, it is necessary to charge and discharge the safety devices as fast as possible. To select a capacitor with the charge time claimed by the applicant is only a matter of engineering design choice since charge time is merely a function of the capacitance in volts, load charge, and power supply charge.

6. Claims 62 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams/Darby in view of Jullian. Adams/Darby discloses an electronic ordnance system as described above. However, Adams/Darby does not disclose the subject matter of applicant's claims 62 nor 63. Jullian discloses such subject matter.

Specifically, Jullian discloses a blasting system comprising a blaster and blasting caps, the blaster operable to assign the blasting caps a unique identifying address (Jullian, col. 15, ll. 10-20 and col. 16, ll. 28-38). At the time of the invention, one of ordinary skill in the art would have found it obvious to provide Adams/Darby with the address assigning capabilities of Jullian. The suggestion/motivation for doing so would have been to make sure that each blasting cap has a unique address to avoid assigning errors that could have taken place during manufacturing in which 2 blasting caps could have received the same address.

7. Claims 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6341562 issued to Brisighella in view of Adams and in further view of Jullian. Brisighella discloses a plurality (col. 1, ll. 37-38) of initiator assemblies 28 to initiate a cable cutter (col. 1, ll. 38). However, Brisighella does not disclose the



networked system of Adams. Adams discloses an electronic ordnance system as described above and Jullian discloses the ability to issue global commands to one or all pyrotechnics. At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the cable cutter (with initiator) of Brisighella with the bus ordnance system of Adams. The suggestion/motivation for doing so would have been to allow for the communication, testing and identification of each cutter (igniter) in the system.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is (703) 308-5870. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached at (703) 306-4198.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-4177. The fax phone number for the organization where this application or proceeding is assigned is (703) 306-7687.

  
MICHAEL J. [unclear]  
SUPERVISORY PATENT EXAMINER